FAA-E-2360a
AMENDMENT-2
1 MARCH 1971
SUPERSEDING
AMEND.-1, 10/26/70

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION SPECIFICATION

BRIGHT RADAR INDICATOR TOWER EQUIPMENT (BRITE)

This amendment forms a part of FAA-E-2360a dated 5 October 1970.

Page 1, paragraph 2.1: Delete last two lines and substitute in place of: "FAA-G-2100/5 Part 5, Requirements for Equipments Employing Microelectronic Devices."

Page 2, paragraph 2.3: Delete" RS-170, Monochrome Television Studio Facilities and substitute: "RS-330 Closed Circuit Television Camera 525/60 Interlaced 2:1."

Page 7, paragraph 3.3.3.3: Delete last three sentences.

Page 8: Add the following paragraph:

"3.4.1.1.1 Either of two different types of trigger mode timing will be encountered as specified below:

(a) Non-staggered mode: Triggers will occur at regular time intervals within the approximate range of 667 microseconds to 1429 microseconds, as determined by operation of the associated radar on a single PRF within the range of 700 to 1500 pulses per second.

(b) Staggered mode: Triggers will occur at irregular time intervals, each interval within the approximate range of 833 to 1429 microseconds, as determined by random sequential, repetitive operation of the associated radar on up to six discrete PRFs within the range of 700 to 1200 pulses per second.

Performance of the display system shall be in accordance with all requirements specified herein for both (a) and (b) above. Sweep countdown shall not occur for triggers within the range of 700 to 1500 pulses per second; rather, limiting of the maximum displayed range to less than 60 nautical miles shall occur at trigger PRFs in excess of 1200 pulses per second. In either the staggered or unstaggered mode, radar video will be in time synchronization with the triggers."

Page 8, paragraph 3.4.1.2 and 3.4.1.2.1: Delete paragraphs and insert therefor:

"3.4.1.2 Azimuth data.-The equipment shall be designed to operate when receiving synchro azimuth data or digital azimuth data. Conversion to operate from one type input to the other shall be made by interchanging of one printed circuit board within the PPI. Space shall be provided within the PPI cabinet to store the unused printed circuit board.

3.4.1.2.1 Synchro/converter.-The contractor shall furnish a single speed solid state servo. The solid state servo shall meet all the requirements of this specification and, in addition, shall meet the following:

(a) The solid state servo shall have no rotating machinery.

(b) North orientation shall be fully adjustable within the servo module without resorting to antenna stoppage.

(c) Automatic gain compensation shall be utilized to maintain an output amplitude of $\pm$ 1.0 percent with input variations as specified in paragraph 3.2.11, Service Conditions.

(d) Construction shall be modular and completely solid state in design utilizing state of the art components.

(e) The accuracy shall be such as to meet the requirements of paragraph 3.4.3.1.

(f) Adequate filtering shall be included to prevent discernible effects of extraneous modulation on the input signals from the synchro.

3.4.1.2.1.1 Synchro input data.-The equipment shall operate from synchro data having the following range of characteristics:

(a) Scan rate: 5 to 18 revolutions per minute, clockwise.

(b) Reference voltage (R1, R2): 120 VAC, 60 Hz.

(c) Stator voltages: S1, S2, and S3 outputs of a 5 HG or equivalent synchro transmitter. The display equipment shall operate in accordance with all the requirements of this specification when receiving inputs from a one-speed servo system.

3.4.1.2.2 ACP/ARP digital converter.- The contractor shall furnish an ACP/ARP converter. The converter specified herein, shall accept 4096 pulses and one reference pulse for each 360 degree rotation of the antenna. The converter shall be capable of meeting specification requirements of all antenna speeds from 5 RPM (342 azimuth pulses per second) to 18 RPM (1228 azimuth pulses per second). Provisions shall be incorporated to compensate for displacement of the ARP pulse up to ± 220 ACP pulses from the antenna north position.

3.4.1.2.2.1 Digital input data.- The equipment shall be capable of operation with azimuth change pulse and azimuth reference pulse inputs provided over separate coaxial cables. With the equipment operating or turned off, all signal input impedances shall not be less than 5,000 ohms. Two BNC connectors shall be provided for each pulse input so that each input cable may be either terminated into a 75 ohm resistive load or extended to another BRITE display. The characteristics of the input pulses are as follows:

Azimuth Change Pulses (ACP)	4096 pulses per 360° of antenna rotation equally spaced over 360° *
ACP pulse-to-pulse jitter	± 10% of nominal spacing
ARP pulse-to-pulse jitter	± 20% of ACP spacing
Azimuth Reference Pulse (ARP) (on separate line from ACP)	One pulse from every 360° of antenna rotation at antenna north position midway between two ACPs

Azimuth pulse characteristics (ACP and ARP)

Impedance (design center)	75 ohm
Logic level "0"	0 to 0.5 volts DC
Logic level "1"	5.0 ±1.0 volts DC (positive going)

Pulse width	23 ±3.0 microseconds
Pulse rise time	1.0 microsecond maximum
Pulse decay time	1.0 microsecond maximum

*Nominally, pulses fall at equal intervals; however, under certain conditions such as antenna wind loading pulse-to-pulse time variations can be expected. The reference pulse occurs midway between two of the equally spaced azimuth pulses.

Page 14, paragraph 3.5.1.4: Second line, delete RS-170 and substitute: "RS-330."

Page 16, paragraph 3.5.4: Delete first sentence of second paragraph and substitute: "The TV signal shall be as described in EIA Standard RS-330."

Page 18, paragraph 3.6: Delete paragraph and insert therefor:

"The television display unit shall be a self-contained and compact unit, no larger than 16 inches wide by 16 inches high by 24 inches long for 12-inch displays and no larger than 19 inches wide by 19 inches high by 27 inches long for 16-inch displays. The display unit shall be completely enclosed except for necessary cable entrances and exits and ventilation openings. The display unit shall contain handles allowing it to be easily transported from the tower to the maintenance equipment room. The handles shall be recessed within the display so when not in use they do not extend beyond the display cabinet. The display unit shall be capable of operating in accordance with the requirements of this specification in any position, i.e., face up, face down, or any intermediate position. #

Page 20, paragraph 3.6.6.1: Second line; last three words should read: "1 to 100".

Page 27, paragraph 3.8.11: Delete last sentence and insert the following: "The equipment shall provide a minimum system MTBF 2000 hours and a maximum MTTR of one hour.

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